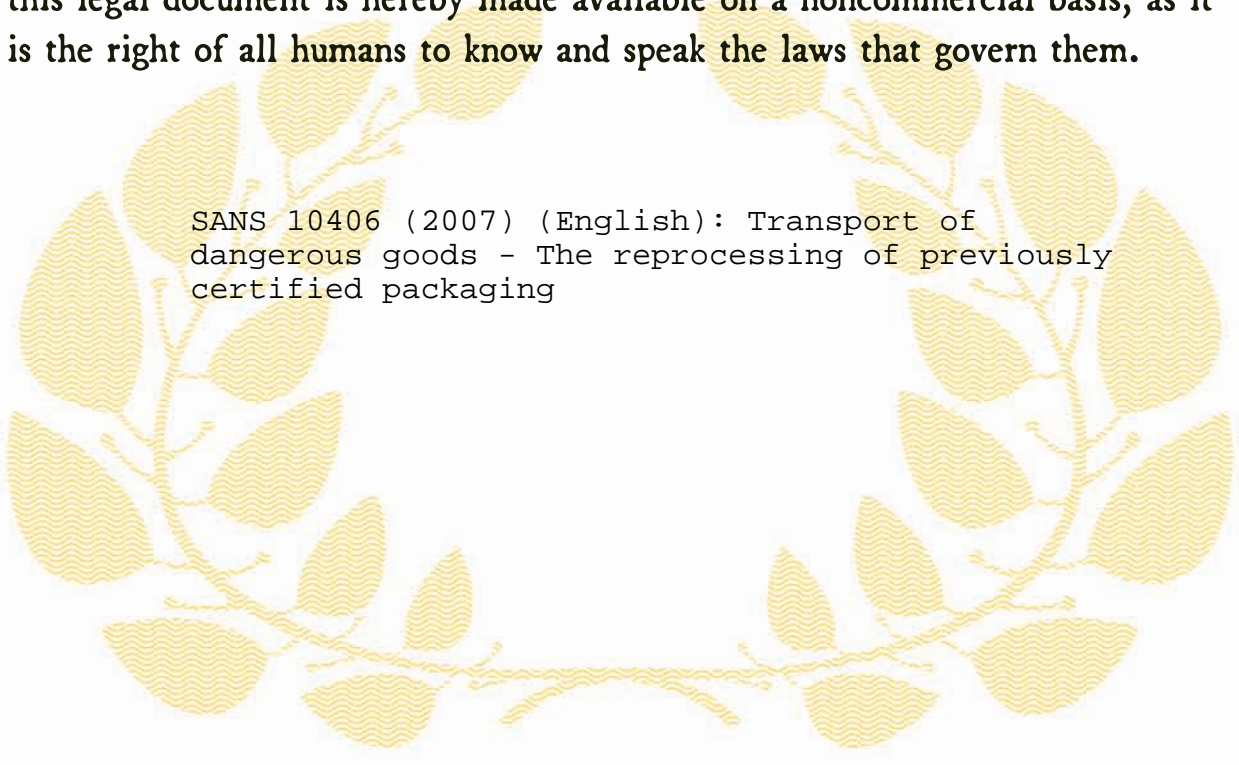




Republic of South Africa

EDICT OF GOVERNMENT

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.



SANS 10406 (2007) (English): Transport of
dangerous goods - The reprocessing of previously
certified packaging



BLANK PAGE



ISBN 978-0-626-19668-4

SANS 10406:2007

Edition 1.1

SOUTH AFRICAN NATIONAL STANDARD

Transport of dangerous goods — The reprocessing of previously certified packaging

Published by Standards South Africa
1 dr Itegan Road Groenkloof ☒ Private Bag x191 Pretoria 0001
tel: 012 428 7911 fax: 012 344 1568 international code + 27 12
www.stansa.co.za
© Standards South Africa

standards
SouthAfrica
(a division of SABS)

SANS 10406:2007

Edition 1.1

Table of changes

Change No.	Date	Scope
Amdt 1	2007	Amended to update referenced standards and the empty packaging certificate in annex B.

Foreword

This South African standard was approved by National Committee STANSA SC 5120.06Y, *National committee for dangerous goods standards – Packaging*, in accordance with procedures of Standards South Africa, in compliance with annex 3 of the WTO/TBT agreement.

This standard was published in May 2007. This document supercedes SANS 10406:2004 (edition 1).

A vertical line in the margin shows where the text has been technically modified by amendment No.1.

Annexes A and B are for information only.

Contents

	Page
Foreword	
1 Scope	3
2 Normative references	3
3 Definitions and abbreviations.....	3
4 General requirements	5
5 Reprocessing of a steel drum	7
6 Reprocessing of a plastics drum.....	9
7 Reprocessing of an IBC	10
8 Reprocessed packaging requirements	11
9 Periodic inspection and testing	11
10 Environmental considerations.....	12
Annex A (informative) Acts, regulations and other publications	13
Annex B (informative) Example of a nominally empty packaging certificate	14

SANS 10406:2007

Edition 1.1

This page is intentionally left blank

Transport of dangerous goods — The reprocessing of previously certified packaging

1 Scope

This standard covers the procedures to follow for the reprocessing of previously certified packaging for the transport of dangerous goods, to ensure that the reprocessed packaging meets agreed upon quality standards and that the safe transport of goods packaged in such reprocessed packaging is not compromised.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from Standards South Africa.

SANS 9001/ISO 9001, *Quality management systems – Requirements*.

SANS 10228, *The identification and classification of dangerous goods for transport*.

SANS 10229-1, *Transport of dangerous goods – Packaging and large packaging for road and rail transport – Part 1: Packaging*. **Amdt 1**

SANS 10233 (SABS 0233), *Transportation of dangerous goods – Intermediate bulk containers*.

SANS 14001/ISO 14001 (SABS ISO 14001), *Environmental management systems – Requirements with guidance for use*.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this standard the following definitions apply:

3.1.1

acceptable

acceptable to the relevant authority/authorities administering this standard, or to the parties concluding the purchase contract, as relevant

SANS 10406:2007

Edition 1.1

3.1.2

chime

reinforced circular seam at either end of a drum that attaches the top and the base to the body

3.1.3

container

anything in which or by which dangerous goods are wholly or partly encased, covered, enclosed, contained or packed and which includes any components or materials necessary for a container to perform its containment function

3.1.4

intermediate bulk container

rigid or flexible portable packaging, with a capacity of between 450 L and 3 000 L, as specified in SANS 10233

3.1.5

minor dents

dents that cannot be removed in the reconditioning process and that would not impair the integrity of the reprocessed packaging

3.1.6

nominally empty packaging

previously certified packaging from which contents have been removed as far as possible, by means of the practices commonly employed to remove materials from that type of container, for example pouring, pumping, or aspirating

NOTE Packaging containing residual material of division 6.1 (main or subsidiary hazard, in accordance with SANS 10228) is not deemed empty unless it has been triple-rinsed with an effective solvent, or has been cleaned by a method proved to achieve equivalent removal.

3.1.7

packaging

receptacles and any other component or material necessary for the receptacle to perform its containment function

3.1.8

reprocessing

activities – associated with nominally empty packaging – that are intended to restore the packaging for re-use

NOTE 1 Reprocessing includes three principal categories of activities: remanufacturing, reconditioning and repair.

NOTE 2 In the case of an IBC, the term "reconditioning" is replaced by the term "routine maintenance".

3.2 Abbreviations

3.2.1

IBC

intermediate bulk container

3.2.2

UN

United Nations

4 General requirements

4.1 General

4.1.1 Non-certified packaging

Non-certified packaging may be used for dangerous goods, provided that it has been remanufactured (see 4.1.2) in accordance with this standard, and has subsequently been fully tested in accordance with – and has been found to comply with – SANS 10229-1 or SANS 10233, as relevant.

Amdt 1

4.1.2 Remanufacturing

Remanufacturing – depending on the context – can be any one of the following:

- a) the conversion of packaging to a UN type; or
- b) the conversion of packaging that meets requirements for one UN type to packaging that meets requirements for another UN type; or
- c) the replacement of integral structural components of packaging.

4.1.3 Reconditioning

Reconditioning is the performance of the following activities:

- a) the cleaning and stripping to original materials of construction, i.e. removal of all previous contents, internal and external corrosion, and external coatings and labels; and
- b) the restoration to original shape and contour, with chimes (if any) straightened and sealed, and all non-integral gaskets replaced; and
- c) for steel drums, the inspection after cleaning but before painting, with the rejection of packaging with visible pitting, significant reduction in material thickness, metal fatigue, damaged threads or closures, or other significant defects; or
- d) for plastics drums, the inspection after cleaning, with the rejection of packaging with visible damage such as tears, creases or cracks, or damaged threads, or closures, or other significant defects.

4.1.4 Routine maintenance

Routine maintenance is the routine performance, on a steel, rigid plastics, or composite IBC, of operations such as

- a) cleaning;
- b) removal and reinstallation or replacement of body closures (including associated gaskets), or of service equipment that conforms to the original manufacturer's specifications, provided that the leakproofness of the IBC is verified; and
- c) restoration of structural equipment that does not directly perform a dangerous goods containment function or a discharge pressure retention function, so as to conform to the design type (for example the straightening of legs or lifting attachments), provided that the containment function of the IBC is not affected.

4.2 Reprocessing company

4.2.1 Registration

A packaging reprocessing company shall be registered in accordance with national regulations and statutory requirements (see annex A) and with SANS 10229-1. The company shall mark reprocessed packaging for use in the transport of dangerous goods in accordance with SANS 10229-1 or with 7.2.5 or 7.3.4 of this standard, as relevant. **Amdt 1**

4.2.2 Quality control system

The company shall maintain a documented quality control system in accordance with SANS 9001.

4.3 Certification of the status of nominally empty packaging

A party providing previously certified packaging that contains residues to a reprocessing company, regardless of the previous contents, shall ensure that the packaging is nominally empty, and shall sign a nominally empty packaging certificate on each occasion that packaging is offered, to verify that the packaging is nominally empty.

NOTE An example of such a certificate is given in annex B.

The reconditioning company shall not accept any packaging without a nominally empty packaging certificate.

4.4 Incoming nominally empty packaging

4.4.1 Acceptance

4.4.1.1 Previously certified packaging shall only be accepted for reconditioning if

- a) it is nominally empty (see 3.1.6) and is accompanied by a nominally empty packaging certificate (see annex B); and
- b) it does not exhibit any of the following:
 - 1) repairs affecting any welding;
 - 2) damaged and dented rolling hoops, where applicable;
 - 3) more than minor damage to chimes, where applicable; and
 - 4) excessively dented drum heads.

4.4.1.2 Previously certified packaging shall not be accepted for remanufacturing unless it is nominally empty (see 3.1.6) and is accompanied by a nominally empty packaging certificate (see annex B).

4.4.2 Rejection and scrap

Previously certified packaging that does not comply with the acceptance criteria in 4.4.1 shall be rejected. Rejected packaging shall either be returned to the supplier of the nominally empty packaging, with the reason for the rejection, or be prepared for scrap.

When previously certified packaging is being prepared for scrap, the interior and exterior shall be cleaned with an effective cleaning agent or shall be thermally neutralized in a reclamation furnace, where appropriate, to remove all existing foreign matter, residues, labels and decorative coatings. The packaging shall then be mechanically or hydraulically crushed or shredded.

4.5 Reprocessing facilities and equipment

4.5.1 Facilities and equipment list

At least the following facilities and equipment are required for the reprocessing of previously certified packaging for the transport of dangerous goods:

- a) leakproofness testing equipment;
- b) facilities to weigh the packaging;
- c) facilities for internal visual inspection;
- d) for steel tight-head drums, a dedenter (either water-pressurized or air-pressurized);
- e) for packaging with chimes, a chime straightener;
- f) internal and external washing equipment; and
- g) waste water control systems.

4.5.2 Maintenance and calibration of facilities and equipment

All facilities and equipment shall be maintained and calibrated regularly, as appropriate. A reprocessing company shall maintain records of all calibrations.

5 Reprocessing of a steel drum

5.1 General

A steel drum may be either remanufactured or reconditioned. Remanufacturing of a steel drum shall be done in accordance with the requirements in SANS 10229-1 for the original manufacturing of that drum.

Amdt 1

5.2 Requirements for the reconditioning of a tight-head steel drum

5.2.1 All previous contents and any corrosion shall be removed, the interior shall be treated for corrosion resistance and measures shall be introduced to prevent condensation. An internal visual inspection shall be performed to ensure that the interior is free of any previous contents and rust.

5.2.2 Internal pressure shall be used to restore the original shape and contour of the drum and to remove all dents. Only minor dents that do not reduce the original integrity of the drum shall be allowed. Chimes shall be mechanically straightened and resealed, when relevant (see 4.4.1.1(b)(3)).

5.2.3 In preparation for painting, the drum exterior shall be chemically cleaned, mechanically brushed, or abrasive blasted to remove labels, coatings and corrosion.

5.2.4 Before painting, the drum shall be inspected for deterioration. A drum with visible pitting, significant reduction in original metal thickness as a result of corrosion, or any other material defects or which has not been returned to the original shape and contour, shall be rejected.

5.2.5 When the thoroughly cleaned drum is to be used for the transport of liquids, it shall be tested for leakproofness by the test intended for the packaging of liquids in accordance with SANS 10229-1. A drum that has been found to leak shall either be rejected or be repaired by welding or brazing. **Amdt 1**

5.2.6 All closures shall be removed, cleaned and refitted with suitable new gaskets. Closures and flanges shall show no damaged threads, and shall ensure a leakproof seal.

5.2.7 The drum shall be refinished with a suitable exterior protective coating.

5.2.8 The reconditioned closed-head steel drum shall be durably marked in accordance with SANS 10229-1. **Amdt 1**

5.3 Requirements for the reconditioning of an open-head steel drum

5.3.1 All previous contents and any corrosion shall be removed, and the drum shall be thoroughly cleaned.

5.3.2 When thermal processing is utilized, the drum with head open shall be conveyed through a drum reclamation furnace in order to subject both the interior and the exterior to temperatures high enough to prepare it for abrasive cleaning. The hardened material, existing linings and coatings, and rust shall be removed through abrasive blasting of the interior and exterior, to reduce the drum to bare metal.

5.3.3 The shape and contour of the drum shall be mechanically restored by expanding and re-rolling. Only minor dents that do not reduce the original integrity of the drum shall be allowed. Chimes shall be mechanically straightened and resealed, when relevant (see 4.4.1.1(b)(3)).

5.3.4 Before painting, the drum shall be inspected for deterioration. A drum with visible pitting, significant reduction in original metal thickness as a result of corrosion, or any other material defects, or which has not been returned to the original shape and contour, shall be rejected.

5.3.5 When the thoroughly cleaned drum is to be used for the transport of liquids, it shall be tested for leakproofness – except for its removable head and adjacent bead area – by the test intended for the packaging of liquids in accordance with SANS 10229-1. A drum that has been found to leak shall either be rejected or be repaired by welding or brazing. **Amdt 1**

5.3.6 All closures shall be removed, cleaned and refitted with suitable new gaskets. Closures and flanges shall show no damaged threads, and shall ensure a leakproof seal.

5.3.7 The closing rings shall be reformed and cleaned, or replaced.

5.3.8 The drum shall be refinished with a suitable exterior protective coating. The interior coating or treatment, if required, shall be applied and cured in accordance with the coating manufacturer's specifications.

5.3.9 The reconditioned open-head steel drum shall be durably marked in accordance with SANS 10229-1. **Amdt 1**

5.4 Requirements for the remanufacturing of a tight-head steel drum

5.4.1 All previous contents and any corrosion shall be removed, the interior shall be treated for corrosion resistance and measures shall be introduced to prevent condensation. An internal visual inspection shall be performed to ensure that the interior is free of any previous contents and rust.

5.4.2 Internal pressure shall be used to restore the original shape and contour of the drum and to remove all dents. Only minor dents that do not reduce the original integrity of the drum shall be allowed. Chimes shall be mechanically straightened and resealed, or shall be replaced and resealed when relevant.

5.4.3 In preparation for painting, the drum exterior shall be chemically cleaned, mechanically brushed, or abrasive blasted to remove labels, coatings and corrosion.

5.4.4 Before painting, the drum shall be inspected for deterioration. A drum with visible pitting, significant reduction in original metal thickness as a result of corrosion, or any other material defects, or which has not been returned to the original shape and contour, shall be rejected.

5.4.5 When the thoroughly cleaned drum is to be used for the transport of liquids, it shall be tested for leakproofness by the test intended for the packaging of liquids in accordance with SANS 10229-1. A drum that has been found to leak shall either be rejected or be repaired by welding or brazing.

Amdt 1

6 Reprocessing of a plastics drum

6.1 General

Excluding a plastics drum which previously contained an agricultural remedy (pesticide or animal health product), a plastics drum may either be remanufactured or be reconditioned. Remanufacturing of a plastics drum shall be done in accordance with the requirements in SANS 10229-1 for the original manufacturing of that drum.

Amdt 1

6.2 Requirements for the reconditioning of a tight-head plastics drum

6.2.1 All previous contents shall be removed. Minimal absorption by the drum of previous contents is acceptable provided that such residue does not affect the structural integrity of the drum, or cause unsafe compatibility problems with future contents.

6.2.2 The exterior of the drum shall be cleaned by the removal of all labels, adhesives and coatings, and shall be stripped down to the original materials of construction. Surface treatments may be utilized to improve external appearance.

6.2.3 After cleaning, the interior and exterior of the drum shall be inspected for flange damage, permanent discoloration, excessive odours, stress cracking, or surface damage that could reduce the structural integrity of the drum. A drum that shows evidence of these problems shall be rejected.

6.2.4 When the thoroughly cleaned drum is to be used for the transport of liquids, it shall be tested for leakproofness by the test intended for the packaging of liquids in accordance with SANS 10229-1. A drum that has been found to leak shall be rejected.

Amdt 1

6.2.5 All closures shall be removed, cleaned and refitted with suitable new gaskets, or shall be replaced when relevant.

6.2.6 The reconditioned tight-head plastics drum shall be durably marked in accordance with SANS 10229-1. **Amdt 1**

6.3 Requirements for the reconditioning of an open-head plastics drum

6.3.1 All previous contents shall be removed. Minimal absorption by the drum of previous contents is acceptable provided that such residue does not affect the structural integrity of the drum, or cause unsafe compatibility problems with future contents.

6.3.2 The exterior of the drum shall be cleaned by the removal of all labels, adhesives and coatings, and shall be stripped down to the original materials of construction. Surface treatments may be utilized to improve external appearance.

6.3.3 After cleaning, the interior and exterior of the drum and drum cover shall be inspected for flange damage, permanent discoloration, excessive odours, stress cracking, or surface damage that could reduce the structural integrity of the drum. A drum and drum cover that show evidence of these problems shall be rejected.

6.3.4 When the thoroughly cleaned drum is to be used for the transport of liquids, it shall be tested for leakproofness – except for its removable head and adjacent bead area – by the test intended for the packaging of liquids in accordance with SANS 10229-1. A drum that has been found to leak shall be rejected. **Amdt 1**

6.3.5 All closures shall be removed, cleaned and refitted with suitable new gaskets, or shall be replaced when relevant.

6.3.6 Closing rings shall be reformed and cleaned, and if necessary painted, or shall be replaced.

6.3.7 The reconditioned open-head plastics drum shall be durably marked in accordance with SANS 10229-1. **Amdt 1**

7 Reprocessing of an IBC

7.1 General

An IBC (see 3.1.4) may be remanufactured, routinely maintained, or repaired. Remanufacturing of an IBC shall be done in accordance with the requirements in SANS 10233 for the original manufacturing of that IBC.

7.2 Routine maintenance of an IBC (see 4.1.4)

7.2.1 All previous contents shall be removed. Minimal absorption by plastics of previous contents is acceptable provided that such residue does not affect the structural integrity of the IBC, or cause unsafe compatibility problems with future contents.

7.2.2 The exterior of the IBC, including the pallet or the cage, shall be cleaned of all residues and contamination, and all labels, adhesives and coatings shall be removed. Surface treatments may be utilized to improve external appearance.

7.2.3 After cleaning, the interior and exterior of the IBC and its associated components shall be inspected for permanent discoloration, excessive odours, stress cracking, or surface damage that could reduce the structural integrity of, and significantly weaken, the IBC. An IBC that shows evidence of these problems shall be rejected or repaired (see 7.3).

7.2.4 All service and structural equipment such as filling, discharge, pressure relief and venting devices shall be cleaned and refitted, or shall be replaced when relevant.

7.2.5 The party that performs routine maintenance on an IBC shall durably mark the IBC near the manufacturer's UN design type marking to show the country in which the routine maintenance was carried out, and the name or authorized symbol of the party that performed the routine maintenance.

7.3 Repair of an IBC

7.3.1 An IBC that has been damaged by impact, or that shows evidence of corroded steel, embrittled plastics, or other damage that could reduce the strength of the IBC, may be repaired, but the body of a rigid plastics IBC and the inner rigid receptacle of a composite IBC shall not be repaired.

7.3.2 The rigid inner receptacle of a composite IBC may be replaced with another receptacle that complies with the manufacturer's original specification.

7.3.3 A repaired IBC intended to contain liquids or solids for filling and discharge under pressure shall be tested for leakproofness in accordance with SANS 10233.

7.3.4 The party that repairs an IBC shall durably mark the IBC near the manufacturer's UN design type marking to show the country in which the repair was carried out, and the name or authorized symbol of the party that performed the repair.

8 Reprocessed packaging requirements

A reprocessed steel or plastics drum or IBC shall meet the packaging requirements of SANS 10229-1 or SANS 10233, as relevant. **Amdt 1**

9 Periodic inspection and testing

9.1 A remanufactured steel or plastics drum or IBC shall be subjected to the following inspections and tests in accordance with SANS 10229-1 or SANS 10233, as relevant: **Amdt 1**

- a) visual inspection of the internal and external areas of the drum or IBC;
- b) testing of the proper functioning of its service equipment;
- c) assessment of compliance of the drum or IBC with the design type specification (including marking);
- d) the drop test;
- e) when used for the transport of liquids, a leakproofness test;
- f) when used for the transport of liquids, an internal pressure test; and
- g) the stacking test.

9.2 A reconditioned steel or plastics drum, or a routinely maintained IBC, shall be subjected to the following inspections and tests in accordance with SANS 10229-1 or SANS 10233, as relevant, in every instance prior to its re-use:

Amdt 1

- a) visual inspection of the internal and external areas of the drum or IBC;
- b) testing of the proper functioning of its service equipment;
- c) assessment of compliance of the drum or IBC with the design type specification (including marking); and
- d) when used for the transport of liquids, a leakproofness test.

10 Environmental considerations

A packaging reprocessing company shall demonstrate compliance with all applicable legislation, national regulations (see annex A) and other national publications (see annex A), and with SANS 14001.

Annex A
(informative)

Acts, regulations and other publications

The following Acts, regulations and other publications are relevant to this standard for the handling and transportation of dangerous goods in South Africa:

- a) Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965);
- b) Environment Conservation Act, 1989 (Act No. 73 of 1989) and EIA Regulations;
- c) Explosives Act, 1956 (Act No. 26 of 1956);
- d) Fire Brigade Services Act, 1987 (Act No. 99 of 1987);
- e) Hazardous Substances Act, 1973 (Act No. 15 of 1973);
- f) National Environmental Management Act, 1998 (Act No. 107 of 1998);
- g) National Road Traffic Act, 1996 (Act No. 93 of 1996);
- h) National Water Act, 1998 (Act No. 36 of 1998);
- i) Nuclear Energy Act, 1999 (Act No. 46 of 1999);
- j) Occupational Health and Safety Act, 1993 (Act No. 85 of 1993); and
- k) South Africa. Department of Water Affairs and Forestry. *Minimum requirements for the handling, classification and disposal of hazardous waste*. 2nd ed. Pretoria: The Department, 1998. Waste management series.

Annex B
(informative)

Example of a nominally empty packaging certificate

NOMINALLY EMPTY PACKAGING CERTIFICATE

I hereby certify that these containers are “nominally empty” (see 3.1.6 in SANS 10406:2004) and that they have been prepared for transport in compliance with national legislation (see annex A in SANS 10406:2004).

Name of company:

Number and type of containers:

Previous contents:

Name of operator:

Registration of vehicle:

Make of vehicle:

Amdt 1

Destination:

Signature:

Name and designation:

Date: